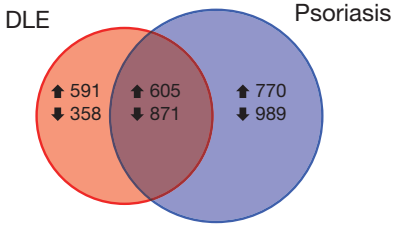
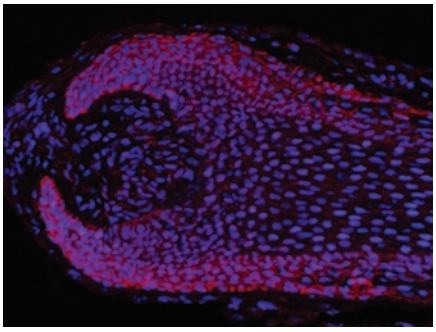
A Th1 Slant



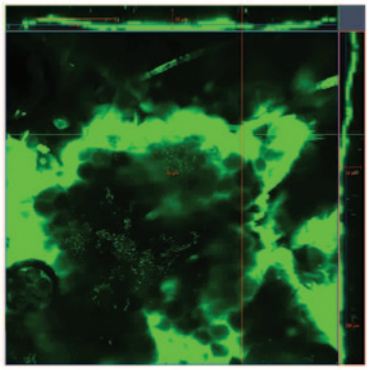
Although discoid lupus erythematosus (DLE) is the most common skin manifestation of lupus, the immune-related pathways involved in this autoimmune disease are not completely understood. This lack of information prevents breakthroughs in treatment options for a disease that is not effectively managed with currently approved first-line antimalarials. Using gene set enrichment analysis, Jabbari and colleagues compared DLE to the well-studied immune signature of psoriasis. Despite previous evidence to the contrary, DLE exhibited minimal T helper type 17 (Th17) involvement with skewing toward a predominantly Th1 signature, highlighting the possibility of manipulation of IFN-γ or Th1-cell infiltrates to treat DLE. ***See page 87***

Neuroendocrine Regulation in Hair Follicles



The hypothalamic–pituitary–thyroid (HPT) axis hormones are expressed in hair follicles (HF) and control mitochondrial function in the human epidermis. Vidali and colleagues found that these hormones rapidly stimulate gene expression in mitochondria and induce mitochondrial biogenesis in human scalp HFs. Thus, these hormones stimulate mitochondrial activity, and these effects are exerted on outer root sheath keratinocytes as opposed to within the hair matrix. The findings indicate that mitochondrial biology, energy metabolism, and the redox state of human HFs are regulated by the neuroendocrine HPT hormones, and they offer a new avenue for exploring the use of these hormones in mitochondrial medicine. ***See page 33***

Low Reaction Threshold



Despite the fact that transglutaminases (TG) are known to produce stable protein cross-links for an effective skin barrier, the recently generated TG3 knockout mouse exhibited impaired hair development but no defect in epidermal barrier function. Using a model of FITC contact hypersensitivity, Bognar and colleagues observed in TGM3 knockout mice a clinically latent barrier defect as measured by more invasive percutaneous penetration of FITC from the skin surface. Moreover, these mice exhibited significant susceptibility to sensitization by FITC, indicating a reduced inflammatory threshold without a concomitant reduction in immune reactivity to pathogen challenge. Thus, TG3 contributes to a functionally intact epidermal barrier. ***See page 105***

Screening Effects

Eisemann and colleagues reported up-to-date nonmelanoma skin cancer incidence data from the German Schleswig–Holstein population. A pronounced incidence increase (by 47% for women and 34% for men) was found following the introduction of a pilot skin cancer screening project (SCREEN) in this region. This increase was not observed in the control population of Saarland, Germany, until the introduction of a nationwide skin cancer screening program. If future studies successfully implicate the screening program in this incidence increase, these data would support implementation of a population-based skin cancer screening program. ***See page 43***

Information from Our PEERs

Global variation has been reported for eczema prevalence, suggesting that climatic factors may play a role in disease susceptibility. In addition, anecdotal evidence suggests that eczema flares are common during winter and summer months. Sargen and colleagues performed an analysis of data from 5,595 children with eczema enrolled in the Pediatric Eczema Elective Registry Cohort from 2004 to 2012. The data from this large-scale, prospective, longitudinal cohort study revealed that warm temperatures, high humidity, and high sun exposure are indeed associated with poorly controlled disease. ***See page 51***

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